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EXAMINER

TUNG, TA HSUNG

ART UNIT PAPER NUMBER

1753

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/955,791

Applicant(s)

BROY CZ TAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No. 8

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 7-17-03
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 42-71 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 42-71 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 42-44, 47, 48, 51-53, 56, 57, 60, 61 are rejected under 35 U.S.C. 102(e) as being anticipated by Hodges et al 6,592,744.

Hodges discloses a system for detecting the filling status of an electrochemical cell, wherein a light from a light source (e.g. laser) is passed through the cell and detected by an optical detector. The light has a certain property when passing through a liquid in the cell to indicate the cell to be filled with the liquid, and a different property when not passing through the liquid. Since the space in the cell not occupied by liquid is occupied by air, it is evident that the Hodges system can also detect air bubble presence in the cell. See col. 1, line 55; col. 2, line 48 to col. 3, line 3; col. 4, line 38 to col. 5, line 53.

Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al.

This claim differs by calling for retrofitting an electrochemical cell with the light source and the optical detector.

It would have been obvious to retrofit the Hodges cell with the light source and the optical detector, if the cell is not originally equipped with them. Some buyers of the cell may not desire to pay for the optical detection feature, which can always be retrofitted at a later time.

Claims 45, 46, 54, 55, 62, 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al in view of Kiesele et al 5,126,035.

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These claims differ by calling for the cell to be an oxygen sensor and to have a configuration of a cylinder with an anode and a cathode at the end portions of the cylinder.

Kiesele discloses an electrochemical oxygen sensor with a cylindrical shape and electrodes adjacent the end portions of the cylinder. See figure 1; col. 4, line 11 and col. 5, lines 35-65. It would have been obvious to adapt the optical detection means of Hodges to the Kiesele sensor so as to ascertain the condition of the sensor.

Claims 49, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al in view of Gates 5,237,855 or Japan 4167087.

These claims differ by calling for multiple optical detections means.

Gates discloses multiple optical detectors 40 for detecting gas bubbles. See col. 4, line 68. Japan '087 discloses multiple optical detectors 3, 4. See the English abstract.

It would have been obvious for Hodges to adopt more than one optical detectors in view of the secondary references so as to detect both the direct path and the refracted path of a light.

Claims 50, 59, 65, 66, 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al in view of Gates.

Claims 50 and 59 differ by calling for an alarm circuit to indicate gas bubble presence in the cell. Claims 65, 66 and 71 differ by calling for brackets for mounting the optical detection system.

Gates discloses an alarm circuit for indicating bubble presence (col. 6, lines 20-26) as well as brackets 28 for mounting an optical detection means (col. 4, line 16). It would have been

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obvious for Hodges to adopt an alarm in view of Gates so as to alert a technician of the detrimental condition in the cell. It would also have been obvious for Hodges to adopt Gates' mounting brackets for its optical detector, since brackets are among the most common supporting means known, and there is no unexpected result in its use.

Claims 67-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hodges et al in view of Gates and Kiesele et al.

These claims further differ by calling for the cell to be a gas sensor. As discussed before, that is rendered obvious by Kiesele.

Claims 42-44, 47, 48, 50-53, 56, 57, 59-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasberg 3,410,778 in view of Hodges et al and/or Gates or Japan 58109875.

As discussed in the previous Office action, Krasberg discloses an electrochemical cell comprising an anode 66 and a cathode 60 (col. 2, lines 68-col. 2, line 70). In the paragraph connecting columns 3 and 4, the patent discloses the problem of gas bubble formation in the cell. Applicant's claims differ by calling for an optical detector to detect any gas bubble formation.

As discussed before, Hodges or Gates discloses optical detection means capable of detecting gas bubble presence. In the case of Hodges, the optical detection means is applied to an electrochemical cell. Japan '875 also discloses optical detection means for detecting gas bubbles including means for detecting the reflection or refraction of a light beam caused by the bubbles. See the English abstract.

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It would have been obvious for Krasberg to employ optical detectors in view of the secondary reference to detect any gas formation in the cell, because Krasberg is aware of the problems that such gas formation can present and because optical detectors are accurate, inexpensive and easily deployable.

In regard to claims 50, 59, 65, 71, note that Gates discloses an alarm circuit as well as mounting brackets for the optical detecting means.

Applicant argues that while Krasberg may discuss the problem of gas formation in an electrochemical cell, the reference does not disclose any means, much less optical means, for detecting such gas formation. Also, applicant considers the optical detectors of Gates and the Japan references to be non-analogous to Krasberg and thus there would be no motivation for combining them.

These arguments are totally non-persuasive. Since Krasberg teaches the problem of gas formation, it would have been readily obvious to one of ordinary skill in the art to devise means for detecting such gas formation. If high blood pressure were known to be a problem, how is it possible not to be obvious to measure one's blood pressure?

As for using optical detectors for measuring gas formation in an electrochemical cell such as that of Krasberg, that is also considered to have been obvious. The optical detectors of the secondary references are accurate, inexpensive, and can be externally deployed and therefore suitable for retrofitting. These are all properties that make optical detectors obviously desirable for measuring gas formation in an electrochemical cell. That Gates and Japan do not teach the

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use of their optical detectors for an electrochemical cell hardly negates the obviousness of such use. To buy into applicant's argument, one would have to assume that the teaching of the secondary references applies only to the specific object disclosed therein. For instance, Gates only teaches the detection of gas bubble formation from a fuel tank leakage. That position is believed to be unwarranted. In any event, Hodges discloses an optical detector in combination with an electrochemical cell. Thus, it can not be argued that such combination would have been unobvious to one of ordinary skill in the art.

Claims 49, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasberg in view of Hodges et al and/or Gates or Japan 58109875, and further in view of Japan 4167087.

These claims further differ by calling for multiple detectors to detect a light beam at both its direct path and its refracted path. As discussed before, Japan '087 renders that obvious.

Claims 45, 46, 54, 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasberg in view of Hodges et al and/or Gates or Japan 58109875, and further in view of Kiesele et al.

These claims further differ by calling for the cell to have a cylindrical configuration with the electrodes located adjacent the end portion of the cylinder. As discussed before, Kiesele renders obvious such a cell configuration.

Claim 71 is rejected under 35 U.S.C. 102(b) as being anticipated by Gates.

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Stripped of its non-positive, functional language, this claim appears to call for nothing more than brackets adapted to mount a light source and a light detector to an object. Thus, the claim recites nothing more than brackets.

Applicant argues that if the brackets are novel and unobvious, they are patentable.

This argument is totally non-persuasive. Applicant's claim does not recited any novel or unobvious bracket characteristics. Instead, the brackets are described as being adapted to support a light beam source and a light beam detector to an electrochemical cell. Any bracket, absent more restrictive definition, can be said to be capable for supporting a light beam source and a light beam detector. Thus, the brackets of Gates are considered to meet this claim.

The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9310.



Ta Tung

Primary Examiner

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